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ROCKS and MINERALS

Official Journal of the Rocks and Minerals Association

A Magazine for Mineralogists, Geologists and Collectors

JUNE, 1946

25c

Vol. 21, No. 6 Whole No. 179

FINE MINERALS FROM AN OLD COLLECTION

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No lists furnished, but enquiries for specific minerals welcomed.

ROCKS and MINERALS
PUBLISHED MONTHLY

Edited and Published by
PETER ZODAC

June
1946

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ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

The official Journal of the Rocks and Minerals Association

CHIPS FROM THE QUARRY

American Museum Issues Mineral Cards In Color

The American Museum of Natural History, 79th St. and Central Park West, New York 24, N. Y., has just released a series of six attractive postcards showing minerals in color. The minerals shown are: Brazilianite (the new gem stone from Conselheira Pena, Minas Gerais, Brazil — rough crystals and cut gems), Galena (crystallized from the Joplin District, Mo.), Quartz (thin slices from Minas Gerais, Brazil), Rhodochrosite (crystal from Alicante, Lake Co., Colo.), Rutile (crystal in matrix from Graves Mountain, Ga.), and Simpsonite (three crystals from Alto Do Giz, near Ecuador, Rio Grande Do Norte, Brazil—two of the crystals show their blue fluorescent color).

These cards sell at 5c each or the set of six for 25c.

H. S. Keithley Moves

H. S. Keithley, the popular secretary of the Mineralogical Society of Arizona, is moving from Phoenix, Ariz., back to his native Tennessee. His new address will be 81 Elm St., Covington, Tenn. In notifying us of the change in address, Mr. Keithley writes: "No collecting areas and no rockhounds back there, but some mighty fine fishing. I'll miss one; enjoy the other."

Mrs. Morse Dies

It is with much sorrow that we announce the death of Mrs. Grace Morse, wife of Frank Morse, of Bayfield, Colo., who passed away on Fri. March 29, 1946. Death was due to cancer.

Mr. and Mrs. Morse, proprietors of the Colorado Gem Co., had so many plans for their establishment, that Mr. Morse now feels "lost" but will try to carry them out to the best of his ability.

We are very sure that the sympathy of all readers and especially of the members of the Rocks and Minerals Association are extended to Mr. Morse, a fellow member.

LEWIS B. PRINGLE

Lewis B. Pringle, age 54, of 1862 Battery Street, Little Rock, Arkansas, died suddenly at a local hospital on April 25, 1946.

After his graduation from the University of Wisconsin, he spent some time as a mining engineer in Mexico before entering the advertising field. He came to Little Rock in 1930 from Kansas City, Missouri, where he was in the advertising department of the Long Bell Lumber Company. At the time of his death Mr. Pringle was a member of the Robert J. Brooks advertising agency of Little Rock. He was a member of the Presbyterian Church of Fort Smith, Arkansas. Surviving are his mother, Mrs. Lucy Pringle of Little Rock, and a son, Robert Lewis, of Los Angeles, California.

Mr. Pringle started collecting minerals about five years ago and through his tireless energy on field expeditions and extensive trading of specimens with other collectors throughout the world he soon acquired a mineral collection which any discriminating mineralogist would be proud to call his own. He was an active member of the Arkansas Mineralogical Society, and was elected a trustee of that group in 1944 and 1945; he was also a member of the Rocks and Minerals Association. In the past year his trading activities increased to such an extent that he establshed a small mineral business in order to supply collectors everywhere with fine specimens from the Arkansas region. Mr. Pringle was continually interested in the younger generation and always had a specimen or so to give to the boy or girl who showed an interest in collecting rocks and minerals. His loss will be a very real one to his many friends and associates. Arrangements are being made to dispose of his private collection and stock to local collectors and dealers.

Woodland G. Shockley

—o—

Hang on to that printer!

Editor R&M:

Although *Rocks and Minerals* is very late in coming out, I want to say that I like the way in which its ads are set up. Also the print is clear and there are no mistakes. What ever you do, hang on to that printer.

M. Avery,
Hoboken, N. J.

ROCKS and MINERALS

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June 1946

THE GRANITE PEAK AREA, UTAH

By RONALD L. IVES

Vice-President, R. & M. A.

Abstract

Geology, physiography, and mineralogy of the Granite Peak Area, an igneous inselberg in the central part of Tooele County, Utah, are here briefly outlined.

Introduction

Granite Peak, Utah, one of a pair of ancient granitic islands in Pleistocene Lake Bonneville, is a typical *inselberg*, or island mountain, rising from a pedimental basement largely composed of debris washed from its own slopes. General appearance of Granite Peak and its environment is shown in Fig. 1.

Located in the central part of Tooele County, Utah, Granite Peak is one of the most isolated places in the Continental United States. This region has been used for testing experimental munitions, and is now closed to entry for an indefinite (long) period for reasons of safety and military security. Relation of Granite Peak to other features of the desert area is shown in Fig. 2. Wildcat Mountain (Fig. 2), about 20 miles due north of Granite Peak, a former producer of fluorite, is geologically a "twin" of Granite Peak.

General Structure

Field evidence strongly suggests, but does not rigorously prove, that Granite Peak owes its origin to multiple faulting along zones of displacement similar to those in the Dugway Mountains (1), somewhat complicated by motion along the northeast fault trend between Fish Springs and Orr's Ranch (2). If a fault is also assumed along a zone trending approximately east from Gold Hill to Orr's Ranch (Fig. 2), the geological isolation of Granite Peak is plausibly explained; and the granite "cut in" at the head of Skull Valley, as well as the intrusions carrying low-grade copper in Kelly's Hole, can be attributed to the same general sequence of geological events. The actual picture is probably much more complicated than this outline, which is based on surface evidence only, some of it considerably extrapolated.

General Geology

The geology of Granite Peak is quite complicated, but can be generalized into a mappable whole without great loss of accuracy. The major part of the peak is composed of intrusive material, which is present as injection—gneiss pegmatite, and felsite-latite.

Generalized geology of Granite Peak is shown in Fig. 3, a map based on aerial surveys plus ground work.

Appearance of Granite Peak from the south is shown in Fig. 4, a photograph taken from the Provo shoreline on the Dugway Mountains, near Kelly's Hole. Comparison of Figures 3 and 4 will give a good general idea of the geology of this area, and of its influence on the land forms.

Rocks here are rather typical of the region. The limestones composing "Sapphire Mountain" are early paleozoic material, containing poorly-preserved trilobites and barrel sponges (?), with silicified fragments of coral. The name Sapphire Mountain was applied to the ridge because a "nest" of brilliant crystals, locally identified as sapphires, was found there in the 1880s. Subsequent investigations have disclosed a few cavities

(1) Ives, R. L. *Minerals of Kelly's Hole, Utah,* Rocks and Minerals, forthcoming.

(2) Ives, R. L. *The Fish Springs Area, Utah,* Rocks and Minerals, forthcoming: *The Skull Valley Area, Utah.*

Fig. 1 Granite Peak, Utah, as seen from the air. Camera Azimuth S. 80° W. Altitude of plane 15,000' MSL. Peak is about 20 miles from the camera in this view. Peaks on the horizon are the Deep Creek Range, near the Utah-Nevada line. Note the flatness of the desert floor surrounding Granite Peak.

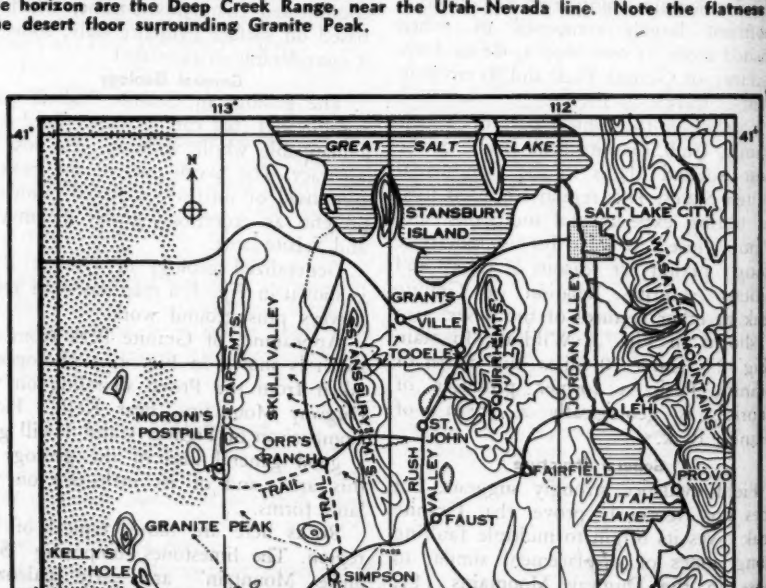


Fig. 2 Outline map of a small part of the Utah Desert Area, showing relation of Granite Peak to other features. Lowest contour is about 5,000 feet; contour interval is about 1,000 feet; summit of peak is about 9500' above MSL.

lined with crystalline quartz, but no sapphires.

The injection gneiss, which comprises the south half of the peak, is composed of a mica schist, similar to the Idaho Springs schist of Colorado, or the Wissahickon schist of the Philadelphia area, shot full of stringers of felsite. In some places this injection comprises more than half of the rock mass, and the stringers are so large that the rock has a "layer cake" appearance.

Toward the northeast, the rock changes rather abruptly, but without a sharp division, into massive felsite, with occasional seams of pegmatite. General appearance of the felsite is shown in Fig. 5, a view of Cannon Falls, on the east side of the Peak. This felsite has been classified as latite by several field workers, on the basis of rough analyses. Until more accurate sampling and analysis has been made, however, the broader term *felsite* is preferred.

Pegmatite is present as small stringers and dikes throughout the peak, but is massive on the northwest side, where it is separated from the rest of the peak by a sharp demarcation, probably a fault.

Minerals

Minerals found at Granite Peak, and reported from that area, are typical of the rock masses present, indicating that relatively standard geochemical reactions took place during the history of the area.

The limestone area produces massive limestone, various poorly-preserved fossils, and a few vugs filled with calcite and quartz crystals. Sapphires have been reported from this area, probably in error.

In the schist portions of the injection gneiss, mostly on the south side of the peak, large garnets, some the size of a golf ball, are relatively common. These are poorly-formed, and appear to be distorted after formation, suggesting that the metamorphism which formed them was followed by further heating and deformation.

The pegmatite area on the northwest side of the peak, and the various pegmatite dikes elsewhere, contain large books of mica, some of them as large as six inches across the flats. This is a very light biotite, often mistaken for muscovite. Although much of this mica appear perfect and undistorted, it has very poor dielectric qualities, suggesting that it has been strained after formation. Black tourmaline in very small crystals is found in the pegmatite area, usually close to the contact of the pegmatite with other materials. Small, pale green beryl crystals, ranging in size from ½" to 2" across the flats, and up to 18" long, are found in these same areas. Several white beryls have been found here, and it is entirely possible that much beryl has been unnoticed because it lacks typical coloration.

Some of the feldspars from the pegmatite areas are bright pink when first exposed, but fade in a few days to pale yellow or light brown. Several rough analyses failed to show what the original coloring matter was.

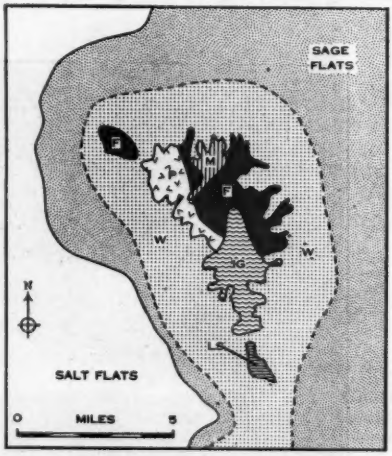


Fig. 3 Geology of Granite Peak. The salt flats are composed of common salt, mixed with various clays, and a small amount of volcanic ash. The sage flat area is underlain by saline clays, containing bentonite. W indicates wash and alluvium, composed largely of disintegration products from the main peak. The small LS area is composed of partially metamorphosed paleozoic limestone, and is sometimes called Sapphire Mountain (see also Fig. 4). Other rock designations are: — F—felsite; IG—injection gneiss; P—pegmatite; M—mineralized area.

The mineralized area, on the nrth side of the peak (Fig. 3, Fig. 6) is a faulted zone containing a network of veins and dikes. Differential erosion has produced very rough topography here (Fig. 6), and multiple changes in the level of the water table have complicated the distribution of secondary minerals.

Present evidence suggests multiple mineralizations. The earliest, apparently, as all others veins cut it, was a lead—silver mineralization, containing galena (silver-bearing), and producing, as a disintegration product, a whitish-yellow gouge containing silver, lead, oxide, and carbonate radicals. This is a mixture of compounds, rather than a single mineral, and varies in composition from place to place. Some iron oxide is present as a coloring matter.

Somewhat later came another sulfide mineralization, consisting largely of iron and copper sulfides, carrying some gold. Good crystals of iron, copper, and arsenic pyrites are present in the veins, accompanied by malachite and azurite crusts, cubes of limonite (pseudomorph after pyrite), and a brown gouge, very largely limonite, probably an oxidation product of the sulfides.

Also present in the mineralized area are molybdenite and fluorite, both in small quantities, both in isolated small masses, and none of them definitely related to any of the other mineralizations in the area.

Panning of black sand concentrates on the valley floor produced magnetite, not found in place in the veins; an iron-tungsten oxide, probably ferberite; and a faintly radioactive residue which may be a mixture of magnetite and uraninite. The ferberite identification is somewhat doubtful, the uraninite identification is very doubtful.

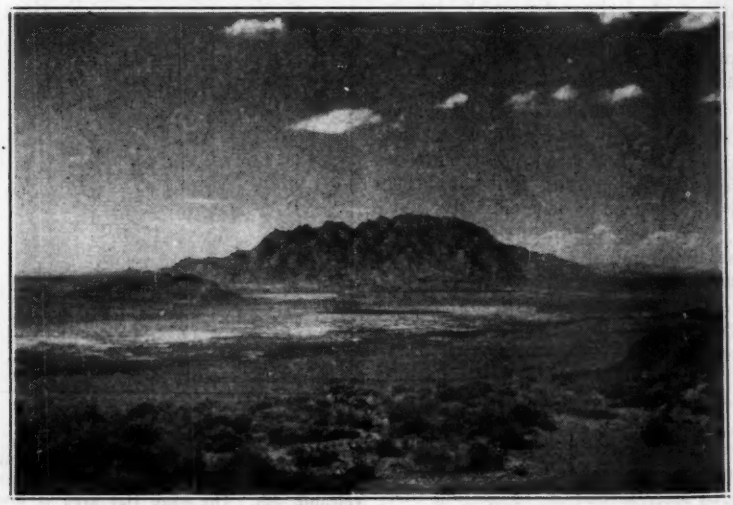


Fig. 4 Granite Peak from the south. Immediate foreground is the Provo shoreline of the Dugway Mountains. In the near distance is the pediment of the Dugway Mountains, composed of wash and alluvium derived from the mountains. White areas are salt flats. In left middle distance is a ridge of metamorphosed paleozoic limestone (LS—Fig. 3. The main Granite Peak massif, in the center middle distance, is largely composed of injection gneiss. At far distant left is a felsite outlier of the main peak (F, in NW, Fig. 3); and dimly visible on right horizon is Wildcat Mountain, about 30 miles, distant, an igneous fault-block that has produced fluorspar in commercial quantities.

Fig. 5 Cannon Falls, on the east side of Granite Peak, in the felsite area. This channel carries water for most of the year, despite the aridity of the region. Note the deposit of algal tufa in the lower center, in the stream. Width of channel at top of falls is about ten feet.

Well drillings north of the peak produced warm sulphurous water, for which there were no surface indications. Seepage water from various prospects and abandoned mines has a small content of sulfuric acid, as might be expected. Spring water, from gravel banks on the floors and walls of several canyons is hard, due to calcium carbonate, but otherwise potable and normal to the area.

History of Area

From the various rocks and minerals present, several chapters in the history of this area can be reconstructed, but the field evidence now known is not sufficient to permit reconstruction of the entire areal history.

Areal geology indicates that an ancient shale (pre-Cambrian?) and a paleozoic limestone were metamorphosed, and that

Fig. 6 Aerial view of the mineralized area on the north side of Granite Peak. The upper part of the valley is still being eroded under present conditions, but the lower part is being filled. Note the multiple shorelines on the canyon walls. Length of canyon here shown is about 1½ miles; photograph taken from about 5,000 feet above valley floor.

the shale, then turned to a schist, was intruded by the latite (or felsite), becoming an injection gneiss. Not shown is the relationship, if any, between the metamorphism of the shale, the metamorphism (partial only) of the limestone, and the intrusions.

Probably related to the intrusion of the felsite into the schist was the formation of the local pegmatites, which fill fissures in the felsite.

Apparently somewhat later than the felsite intrusion was the formation of the mineral veins, which occurred in at least two phases — the lead-silver mineralization, and the pyrite-gold mineralization. Some of the pegmatite dikes are cut by these veins, indicating that the mineralization also followed the pegmatite intrusions.

Not placed by field evidence is the relation of the fluorite, magnetite, molybdenite, ferberite (?) and uraninite(??) mineralizations to the other veins and intrusions.

The present form of Granite Peak is the joint result of multiple faulting in early Tertiary time, largely arid erosion since formation, minor rejuvenations due to later faulting, and multiple shiftings of erosion base level in pleistocene time as a result of changes in the lake level in the Bonneville basin. Pleistocene changes in water level have also complicated the locations of the secondary minerals in the various veins.

Conclusions

From the foregoing data it is apparent that the Granite Peak area is of considerable technical interest in several branches of earth science; that a number of problems relative to the history of the area remain unsolved; and that at least some of the answers will necessarily be found by extrapolation of data from other areas.

A SIMPLE BUT EFFICIENT FLUORESCING PORTABLE LAMP

By T. ORCHARD LISLE

For some time I have been dallying with the thought of trying to make a simple portable ultra-violet lamp out of a common, or garden type, flashlight; but never got around to it until very recently. Today I am mighty glad that I have put my thought into practice because I now possess a portable lamp which will excite fluorescing minerals such as Franklin willemite and calcite, Mirabel dolomite, and Skaggs Springs curtisite to a degree beyond my wildest expectations, and certainly good enough for night use outdoors.

Seven years ago I purchased one of those long flashlights known as the Lightmaster Streamline (The maker's name is not on the same) which takes five No. 2LP Size D Ray-O-Vac dry cell batteries of 1¼ inch diameter. I presume that they are one-volt each. In the clear air of Death Valley, Calif., its range is from the veranda of the Furness Creek Inn to the top of the nearest peak, just one mile as the crow flies. This is the lamp that I decided to convert to an ultra-violet portable.

A few weeks ago I was looking in the window of Harry Ross' store at 68 West Broadway, New York, and noticed that he had some 100-watt purple X, or black light, bulbs for $1.25 apiece. I asked him if he knew anyone who could cut the domed top off one so that I could putty the filtered glass on to the lens of my flashlight. Ross said "I can sell you a four-inch square of flat filter-glass which you can stick on to the lens and which will give you better results. I took his advice and bought the glass which is of German make, and took it to a local glazier who, for a charge of fifty cents, cut a round piece 3⅛ inch diameter and exactly the size of the lens. Next I removed the plain glass and inserted the filter in its place.

While the result is very good, I decided that it would be more efficient if I could get a bulb for the flashlight which would give a stronger light than the 6-volt bulb belonging to the five-cell battery. So, I put in a bulb belonging to a three-cell flashlight and the result was as excellent as it was surprising. There is a nigger in the woodpile, however, because the bulb burns out after about one minute or is apt to blow-out instantly. I tried several bulbs obtained from the local hardware store, and the best results were secured from a bulk of about twice the diameter of the usual bulb; but it lasted but two minutes. The hardware man said it was six volts; although I note that it is marked 2.4 volts. Of course, the proper size bulb for the five cells will burn for an hour or two if used intermittently; however, it does not give as much light as I would like to have, nevertheless it is very much better than two argon bulbs together, in fact there is no comparison. Brand new batteries are advisible should any reader try out my scheme.

Should I be able to get a brighter bulb that will burn for at least thirty minutes I will have a low-cost fluorescing lamp which will meet all reasonable conditions of outdoor night prospecting.

My next step will be to scout around the electrical equipment dealers to see if I can find a portable battery lamp with higher voltage and greater amperage at reasonable cost on which I can mount the filter lens. I have in mind as a possibility the Navy-type portable 7¾ in. by 7¼ in, lamps now being advertised, which is said to light a whole room (with white light) and burn for 600 hours. However, I'm not sure if this lamp is actually brighter than my 5-cell flashlight. Its lens is about 4 inches diameter, which would mean buying another piece of filter glass and cutting to fit.

I still have a desire to get the upper part of a purple X bulb cut, and try this on the flashlight. The glass is very much thinner than the German filter plate and probably would allow more light through.

FLEMINGTON, N. J., COPPER MINE

By PETER ZODAC
Editor ROCKS and MINERALS

One of the old copper mines which made New Jersey famous as a mining state is located in Flemington, the western part of the state (in southern Hunterdon County). The mine is on the western outskirts of Flemington, a village of about 3,000 population.

History of Mine

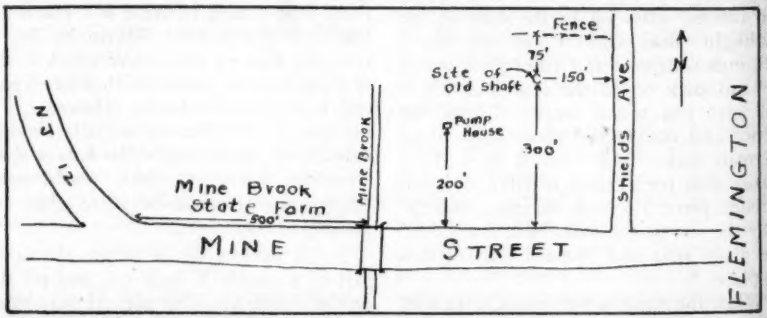
The mine is an old one as it was abandoned about a hundred or more years ago. An early report on the copper mines of New Jersey by Piggott[1] stated: "The Flemington Mine was the only one actually worked at the date of Professor Rogers' report (1836). He described the ore as consisting of gray sulphuret and carbonate of copper, intimately blended and incorporated with semi-indurated and altered sandstone, parts of the mass having the appearance of a comglomerate of recemented fragments. The metalliferous belt, sometimes twenty or thirty feet wide, preserves a north and south direction for several hundred feet. The ores are mixed gray sulphurets and carbonates. They are of very good quality. I find, by reference to my record of analysis for 1849 and 1850, that commercial samples of lots sent to Baltimore varied from 28 to 50 per cent. An attempt was made at one time to smelt the ores on the spot, but resulted in loss. Some of the slag, containing 8 per cent. of copper, was sold in Baltimore. The mine was finally abandoned, the metallic deposit being too uncertain for profitable working. I visited the mine in 1855, but was not able to go down into the shafts, owing to the presence of water, and am consequently unabled, from personal observations, to add anything to what has already been stated on the authority of Whitney and Rogers."

Location and Layout

The mine is on the western outskirts of Flemington near the junction of N. J. 12 and Mine Street—the main shaft being only 300 feet north of Mine Street.

A collector driving past the site would never suspect that the level field north of Mine Street once had an active mine under it. Of course the name of the street and the large sign "Mine Brook State Farm" would indicate that a mine was or had been in the neighborhood and this might cause him to stop and investigate.

The writer first visited the locality on Wed. Oct. 7, 1936, and by chance met an old resident who was not only familiar with the mine but very kindly guided him to it. He pointed out the location of the old vertical shaft (about 150 ft. deep) that had been completely filled up and stated that the little building in the field was a pump house and that the old mine was now the main water supply for Flemington. The dump—there must have been a large one—is no longer in existance but in the field, here and there, tiny mounds of rock in which copper



Rough Sketch Map Showing location of old Shaft and Pump House at the Flemington Copper Mine

ores may be found, were and may still be present. These mounds are the remnants of the old dump.

Though the mine is no longer a source of good minerals, its easy access and historical background should be an inducement for many collectors to visit it.

Mineralogy

The following minerals are known from the locality:

Aragonite: Occurs as grayish crust on red sandstone but not in good quality.

Azurite: Small bluish masses and crusts with other copper minerals

Bornite: As small dark bluish grains in sandstone; as small dark bluish masses with chalcocite, drusy calcite and serpentine.

Calcite: Drusy white crystals in vugs in serpentine; as small white veins in serpentine; and as tiny colorless crystals on sandstone.

Chalcocite: As small dark lead-gray masses with bornite, drusy calcite and serpentine.

Chalcopyrite: As small masses with other copper minerals.

Chrysocolla: As small masses with cuprite, copper, etc.

Copper (Native): Small masses with chrysocolla, cuprite, etc. Native copper was said to have been common in the ore when the mine was in operation.

Cuprite: Dark red, crystallized and massive, with chrysocolla, copper, etc.

Hydrocuprite: Reported by Manchester.[2]

Malachite: As small greenish botryoidal masses and radiating masses, both on sandstone; also as incrustations surrounding bornite.

Melaconite: Reported by Manchester.

Prehnite: A nice pale greenish botryoidal specimen labelled "Flemington Mine, N. J." was seen in the Union College Museum, Schenectady, N. Y., May 31, 1942.

Pyrite: Noted as small grains in bornite.

Serpentine: Soft, dark greenish masses associated with bornite, chalcocite, and drusy calcite; also noted as dark greenish slickensided masses.

Silver: Reported by Manchester.

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1 *The Chemistry and Metallurgy of Copper, including a description of the principal copper mines of the United States and other countries,* by A. Snowden Piggott, M.D. Lindsay and Blakiston, Philadelphia, 1858, pp. 282-283.

2 Manchester, James G., *The Minerals of New York City and Its Environs.* Bull. of the N. Y. Mineralogical Club, New York, N. Y., January 1931, p. 72.

Brewer Mine of Georgia

The Brewer limonite mine, located east of Cedartown on the main highway between Cedartown and Rockmart, is one of the many Georgia localities known for its fine minerals. The mine, however, has been shut down for some years due to the fact that the ore is faintly siliceous and occurs in irregular veins in sandy slate.

The mine is especially noted for two minerals — cacoxenite and wavellite — which have been found in very good specimens. The cacoxenite occurs as radiated golden-yellow tufts on limonite; the wavellite occurs as radiated white clusters also on limonite.

western Georgia.

Cedartown is in approximately the central part of Polk County in north-

Limonite After Wood in Louisiana

A very interesting dark brown cellular mass of limonite after wood has been sent to the Editor of *Rocks and Minerals* by W. M. Dickinson, 673 Egan St., Shreveport 12, La. A letter from Mr. Dickinson, reads as follows:

"The limonite after wood specimen I sent you is from Shreveport, Caddo Parish, Louisiana, near Marshall Street in the city. I found several pieces of it when they were excavating or grading down some sand hills in the preparation of erecting a building on the site. It is just a freak as I have been back there several times and could find only a few iron or limonite geodes and no more limonite after wood; it did appear to be an old piece of log that had been buried in the sand (possibly washed up from the Red River which is only 1/4 mile away."

THE FRIEDENSVILLE ZINC MINES AGAIN

By C. A. THOMAS

706 Church St., Royersford, Penn.

Much has been printed concerning these old mines and their large dumps, but with few facts about the fluorescent possibilities to be found there. These are the mines where the famous grey sphalerite is so plentiful if not always in good concentrated mases or large crystals. Friedensville is a little hamlet in eastern Pennsylvania.

Last summer, the writer was able to descend to the bottom of one of the "Glory Holes" where nearly all of the water was being pumped out. This pumping was a strategic material procurement venture, no doubt, and was stopped at about the time of the Jap surrender. However, the bottom of the open pit became quite dry and among some debris consisting of broken bottles and bullet-perforated cans, the writer picked out an odd red colored rock, not unlike red-shale, which showed thin white veins in divergent directions. This white, almost earthy, material later showed a brilliant white fluorescence under a cold-quartz lamp. A sharp definate blue phosphorescence with a long decay period ensued after a short charge with the cold-quartz; a much longer decay period, possibly four to six hours, took place after a ten to twenty minute charge without the filter. This luminous material is no doubt a zinciferous calcium carbonate. A further search revealed no similar material in red rock during four specials visits last summer.

One balmy Sunday, April 7th of this year, the writer's wife and the writer visited the famous Easton, Penn., Quarry with Helen and Otto (H_2O) Bauhof (they call the writer "The Cat" from his habit of meandering over the rock-piles in the dark and from his initials) and Joe and Peggy Faussett of the Bronx. Some nice eastonite, green serpentine, nephrite?, ilmenite (small), chrysotile in hard green serpentine, tremolite in long soft fibrous masses and thin flat uranophane (carnotite?) coatings on dark serpentine were collected after a perfect lunch was eaten from the top of a huge rock. A poor but representative specimen of molybdenite was found just before leaving the quarry for Friedensville, some twenty miles south of Easton.

At the Friedensville Zinc Mines the writer guided the three car party to "rabbit-ears", the only remaining building ruins which can be used as a guiding land-mark for visiting mineral collectors. Helen Bauhof is perhaps responsible for naming the ruins "rabbit-ears". From a distance the two remaining chimneys do resemble a rabbit's twin hearing-aid.

Perhaps not much was found in the waning after-noon light excepting some suspicious or suspected fluorescent calamine ore which the writer energetically dug from a standing wall of mineralized limestone. Some large chunks of this gray, white and red stained ore was basketed and bagged by the writer while the others in the party searched for calamine crystals (found) and micro specimens such as greenockite on gray sphalerite and beautiful calamine crystals. Cindery masses from the cinder pile were also collected in quantities by the writer.

Almost one quarter of the cinder masses which were tested under the cold-quartz lamp and the long wave lamps were found to be very brightly fluorescent in yellow and white, probably due to the fusing in the furnace of the cadmium sulfide and the zinc-sulfide with other zinc and calcium materials such as calamine and zinciferous aragonite. The above is a mere supposition. Some of the yellowish lumps in the cinders could be readily used as yellow pigment. Some masses are banded yellow and white; some are soft and earthy while some white seams or shell-like veins appear to be fused silicates. The latter type masses are

(*Continued on page 358*)

A NEW FLUORESCENT OCCURRENCE IN NEW JERSEY

By W. H. HAYES

Irvington, N. J.

In August, 1945, the writer went in search of a mineral deposit which had been reported by the New Jersey State Geological Survey some years ago, and which had also been re-stated and described by a land owner in the vicinity of its outcrop. The deposit lies along the eastern slope of what is now called Sunrise Mountain, and this mountain is in reality a northward extension of the Kitattiny range. Approximately 1¼ miles northwest of Beemerville, in Sussex Co., the deposit of nephelite-syenite was found. This one, the largest of several in that county, is in the form of a dike which has burst through the Martinsburg shale and slate at about the junction of the Shawangunk conglomerate that overlies it all, the conglomerate in turn capping the mountain. To reach the deposit it is necessary to go up an old abandoned road which crosses the mountain about midway of the dike. Alongside of the road is a stone wall which contains boulders of the nephelite-syenite, and these may be easily broken up.

Nephelite-syenite is a massive, crystalline mineral of a rather dark gray color, though sometimes found to be a dull reddish color. It has an uneven fracture, and small shiny fracture faces show plainly upon it. Its composition has been reported as orthoclase feldspar, nepheline and pyroxene, with no quartz, and sometimes containing a little biotite.

After collecting and carrying home sample specimens and examining them carefully, much to my surprise there were found to be narrow streaks through the bodies of the chunks of rock that fluoresce a bright orange or tangerine color under short-wave ultra-violet light. As the mineral is placed under the light it glows somewhat weakly at first but grows more brilliant for a time, then reaches its maximum after a lapse of about five minutes. Also along the edge of the specimen where weathering has occurred there are narrow streaks of a light blue fluorescence, though these are not brilliant.

From all tests made so far the orange fluorescence seems to be due to the presence of the variety of sphalerite named cleiophane, and as far as is now known no such mineral has been reported as a constituent of the nephelite-syenite As to the blue fluorescence it is as yet a mystery.

I believe this to be an entirely new fluorescent occurrence in this state, and when same was demonstrated to the members of the North Jersey Mineral Society at its September, 1945, meeting at Paterson Museum, (Paterson, N. J.,) none had seen it before. My opinion is that if the rock can be cleaved along the lines of the narrow fluorescent streaks there will be more surface for the show of fluorescence.

Hilgardite First Found in Louisiana

Although Louisiana is not noted for attractive minerals, a number of interesting specimens have been found (See "Some minerals of Louisiana", *Rocks and Minerals,* Nov. 1942, pp. 378-379).

A new mineral that was first found in Louisiana is hilgardite, a hydrous, colorless, chloro-borate of calcium which was named after E. W. Hilgard, an early geologist of Mississippi and one of the first to make observations on the salines of Louisiana.

Hilgardite, in association with anhydrite, boracite, danburite, magnesite, and others was found in a salt well sunk in the Choctaw Salt Dome, Iberville Parish, in southern Louisiana.

REFERENCE

Hilgardite, a new mineral species from the Choctaw Salt Dome, Louisiana, by Cornelius S. Hurlbut, Jr., and Ralph E. Taylor, *Am. Min.* October, 1937, Vol. 22, No. 10, pp. 1052-1057.

MEMORIES OF NELSON ISLAND, ALASKA

By FRANK H. WASKEY

Aleknagik, Alaska

A deal of water, in very deed, has gone down the Yukon since some one first said; "The two happiest times in a man's life are when he was a boy; and about ten years from now." It has been the writer's good hap to have lived long in a land of blueberry shortcake and of spuds sauteed in moose marrow; to have joyed in winter skies of ultramarine, shading to mallow purple; and to have thrilled to the voices of many waters. And at many a dawn, to have heard the patter of little feet on the cabin floor, hurrying to snuggle in with Dada and Mum. So I can affirm with the Psalmist, "My cup runneth over". Howbeit, deponent doth daydream once and anon; and a favored fancy is that some Spring day I may again visit Cape Vancouver, the westernmost point of Nelson Island, a large island in western Alaska. When last I visited that bold headland, it was by dint of many days on the handlebars of a basket sled with a string of malemutes furnishing most of the motive power.

But if so be that this dreamer, and you, my reader, might shut up shop for a fortnight, let's make-believe we could do about thus. First, see Red or Johnny or Don about chartering a Bellanca or a Stinson or a Ryan. O.K.? Very well, we will carefully select and pack our camp outfit. Then the first week-day in June that flying conditions permit, we are off. Our pilot has doped out as nearly as he can the time of the tide in Etolin Strait. Now given three hours or more of skilful flying and a whole lot of good luck, he sets the ship down at high water slack, just below the Cape. As we carefully taxi to the beach, that no hidden rock may damage our floats, our eyes take in the scene.

A scant score of tents pitched in the Beach rye above the reach of the tempestuous tides, stand out in bold relief. Another prominent feature is more than a score of Kayaks, each raised on crossed poles out of reach of the dogs whose appetites and fangs would work havor with the oiled and talc-whitened sealskin covers.

A dozen half-grown boys race to the beach ahead of several men who gravely follow and assist us in unloading. Children, women, girls; some of them in last year's up-to-the-minute mode, dart in and out of the open tents. A wave-cut scarp for the background completes the picture of Up-a - nuk - ka - thluk — "The Old Spring Way"------for that is how that vowelly village name translates into English.

Hurried notes are written to those at home; our Pilot makes a note of the date we hope he can call for us at Tununak, ten miles easterly, where the water is more often smooth. The tide is now fast ebbing, we wave goodbye, and the plane's wings are dipped in salute as the Natives give their Bon Voyage in rifle fire.

As the sky promises good weather for the day, we accept the invitation of a dignified Ancient, thus worded, "You, cup of tea?" The low oilcloth covered table is set in the sunny outdoors, we seat ourselves cross-legged on grass mats and remove our hats as our host offers grace. "Ate, Atanuk; kwe-ow-ya-kam-kin nuket wha asilaramuk athla....." or "Father, Lord; we thank Thee for food indeed and other good.....".

The tea is brewed very strong in a tiny pot, a girl pours a little in each cup, and another comely damsel adds freshly boiled water from a mammoth tea kettle.

We are served Pilot bread, herring eggs dried on broad leaved sea weed, boiled white whale skin cut in cubes, and a really tasty sorrel gathered that morning at the foot of the scarp.

Pigments Used By Natives

The amenities observed, before we select our camp ground, we examine the pigments being used to decorate a new paddle. Currents, wind, and time have brought the spruce tree, from which it has been so well and truly fashioned, from the Kuskokwim River. Mayhap from under the shadow of Denali, a hundred leagues to the north and east as the raven flies; and moons and seasons away, were we to retrace its wanderings by seashore and river bends.

But, to our mutton, for the pigments are some of the things we have come here for. The pleasing red rock is evidently an argillaceous hematite. Were we to look into the diddy box of any Innuit from St. Michael to Bethel we would find a similar piece of this "Wa-ret-a-rak". Occurring not far from the deserted village of Ukak on the north shore of Nelson Island, it is an article of barter, far and near along the Bering Sea littoral.

The dark green, somewhat harder rock, is evidently a concretion. It occurs in the subsoil of a high tundra, just south of the Cape and not far from where we will camp. These marble—or walnut—size nodules are found in close association with decayed wood.

You may be sure one of our first interesting, if strenuous tasks, will be to strip the sod off the top of the cut bank, and then burrow for some of this "Ko-zhur-uk". This layman cannot give any other name for this mineral for the good and sufficient reason that he does not know what it is. However, as Topsy might say, we "spects" it is an iron silicate or phosphate. As we dig for Ko-zhur-uk we may find a piece or more of bog spruce.

Fossil Ivory Near Nome

Farther north, near Nome, and notably on St. Lawrence Island, much fossil ivory is found, some of it as ebony black as is this bogwood. From this ivory beautiful and lasting ornaments are fashioned by both native professional craftsmen and white Hobbyists. Many a Cheechaco, and not a few Old Timers, seeing in the hands of a Nelson Island visitor to the Yukon what seemed to be a Cribbage board of jet black ivory, has bought from the guileless(?) Native a supposed prize. But a few weeks in the not too humid air of a well heated home, and the treasured prize loses its moisture content, the grain and knots in the wood show, and soon the crib board is a ragged and splintery castoff. Several well dried coats of Shellac, applied in time, might have preserved its beauty.

Fossil Leaves and Ferns

In the restful evenings to come, as we examine the platy gravel along the beach near our camp, we will learn that other trees than spruce once flourished along these now treeless hills and plains. For well preserved leaf forms and ferns are quite plentiful. It is believed that no identifications of fossils from this particular locality have been made.

But the Tertiary rocks of other parts of Alaska have yielded a rich and varied flora. Among the trees represented in Alaska in Tertiary time, Hollick[1] lists under their respective genera, Oak, Maple, Poplar, Elm, Plum, Pine, Sequoia and many others.

Coal Occurrence

A mile or more south of Upanukkathluk, several veins of bituminous coal are exposed. We dig hopefully around these, trying to find some large cubes of pyrite which at one time were used in ear and nose ornaments by the Askinukamut.

Amber Occurrence

Passing our neighbors on our way to camp, we inquire if any of the children have some "Aumuk". If so we will purchase this possibly pecan-size and perhaps blood-red amber.

Amber is found on the beaches near Tununak, but is not at all plentiful. Its occasional translucent crimson may account for the name. 'Auq' is the

1. Arthur Hollick. The Tertiary Floras of Alaska, Plates 23-122. U. S. Geo. Sur. Prof. Paper 182, Washington, D. C. (1936)

western Innuit word for blood, and 'aumuk' the modalis case thereof.[2]

On another visit to the village, we arrange for our transport by sailboat to Tununak. A favorable day is needed for rounding the cape and the shallows on the Hazen Bay side of the Island.

Talc Used for Whitening Articles

We examine a cleverly made wooden dish filled with "O-woos-kuk", i.e. talc. Talc mixed with seal oil is used to whiten their kayaks and high pointed sun hats during the season of seal hunting among the floating ice floes of early spring.

Camouflage of a high order is necessary as the quarry is speared by hand. Aquatic mammals killed with a rifle often sink.

We ask to see a sun hat, and now indeed may we marvel at the skill that fashioned it from a spruce knee with axe and crooked knife. Fancy that gnarled knee whittled down to a sheet nearly as broad and long as a housewife's bread board! Then softened and bent into a cross between a poke bonnet and the pointed head gear of the Ku Klux Klan! The skilfully fitted joinings lashed with rawhide or strips of willow bark!

Sometimes asbestos, or volcanic ash, is used instead of talc for whitening. Charcoal serves to darken the inside of the visor of the sun hats, and wherever black is needed in coloring their wooden wear or etching ivory.

We Visit Tununak

Our good day for the trip to Tununak comes too soon, but we realize that another might be too far in the future. We are awakened early by our weather-and (tide---- wise) friends and we hurriedly break camp.

We introduce ourselves to those of our own race at Tununak, and enjoy not only their kind hospitality, but once again hearing from K.G.E.I. And our surmise as to why there were so few sturdy young men at the Spring Village is verified. For many of the youth of Hazen Bay have gone, via Anchorage, to serve with their fellow Americans on the Aleutians and elsewhere.

We figure that weather may delay our Pilot's return beyond the appointed date and so give us certain days for visiting after we have completed our planned trip farther along the Island.

Arrangements are made to have our camp outfit stowed forward and aft in two of the capacious kayaks of this region, and taken by sea and slough to a favored camping ground.

The kayakmen must wait for the incoming tide till near noon, but "we", with hammer in hand and a lunch in a pack sack, start early around the bay and then eastward at the foot of a north facing cliff of altered sedimentaries.

Another Coal Occurrence

Soon we note "float" of an unusually dense and lustrous coal. The pieces are small at first and widely scattered but increase in number and size and we pick up a chunk roughly 4 by 6 by 12 inches, and noticeably hard and heavy.

We get a little excited; maybe "we have something here". Finding the place at the cliff's foot where there is the most float, we carefully work our way up and along the not-too-safe hillside. A half-hour's close observation and not a little use of our pick, and we have coal "in place". But much to our surprise and disappointment the vein is but an inch or two in width, for a rod or more along its strike, marked only by a gouge of talc and slickensides. But following the vein, and digging away the slide covering it, we find a number of lenses of coal, some tiny, some larger than the biggest pieces of float at the foot of the hill.

We find it more difficult to go down the hillside than it was to come up, but make it safely and resume our way to the appointed meeting place. Around a slight bend in the cliff, a dike of trap rock cutting the sedimentary is seen and a little farther

2. Rev. Francis Barnum, S. J. *Essentials of Innuit*. Pp. 9 & 327. Ginn and Company, Boston, Mass. (1901)

along a most remarkably contorted exposure of a clastic rock. Both are enlighting for they picture the tectonic forces that have squeezed the tiny vein of bituminous matter along its strike to form the comparatively large masses of, shall we say, semi-anthracite? For if this dense, adamantine conchoidal mineral is not anthracite, it is certainly "close by or near to" as we provincials say.

We find our tent already pitched, as bargained for, and a camp fire of alders going. The Natives have already had tea, and are now each finishing a boiled King Eider duck without benefit of plate, fork or other impedimenta.

Feeling that we as explorers have the legal right to, in part at least, "live off the country", we do not hesitate to accept the Murre and Gull eggs which they offer. To our sharpened appetites they are quite palatable.

Next day we inspect a badly caved miniature "Glory hole" where, during the decades since first there were white Traders at Tununak, coal has occasionally been dug for local use.

There are two veins of a good soft coal, each about 8 or 10 inches in width, with about 3 feet of rock between them. Almost in the center of this 3 feet, there are a few inches of a sandstone so friable that it may be rolled between the fingers. As we so roll it in our bare hands we can feel the rounded grains of which it is composed, and sense an oily feel.

Sure enough, as we throw the decomposed rock away there on our fingers is a distinct smudge and a very slight smell of "crude" oil. Let us hasten to say, that nowhere as far as known, is there any surface indication of oil "structure" in the vicinity.

Back to Tununak

Before our kayakmen leave we arrange for them to take our camp back to Tununak the day before our plane is expected.

We put in a few leisurely days digging in the middens of old villages on the streams leading to Baird Inlet. We find some broken pieces of coarse pottery and a few ivory trinkets, but not the nephrite Adz or Slate Story-telling knife we had hoped for.

We go back to Tununak down the hills and high tundras of the back bone of the Island, gathering a few pounds of choice Wa-ret-a-rak on our way. At Tununak we search for Aumuk, gather and press wild flowers, and enjoy the home cooking and preserved berries of our hosts. Then, mirabile dictu, out of the blue, on the appointed morn, comes first the drone and then the sight of our plane.

Fortunately weather and tide permit our Pilot to accept with us an invitation to halibut, and crullers.

In the Village there is a Native who needs hospitalization. Can we return, via Bethel, and have we room for another passenger? We look to the Pilot, and he nods assent.

We Leave for Home

We accept the outgoing mail, assist the ailing Villager to and in the plane, shake hands all round and express our hope that we may, indeed, come again.

The detour to Bethel delays us not over an hour.

We regret we may not visit and shop a few hours in that thriving town, but after all, there is no place like Home, Sweet Home.

Chrysoprase in Queensland

Chrysoprase of a very beautiful apple-green color occurs in Queensland, the northeast state of Australia. It is found in alluvial drifts and in veins around Princhester (44 miles northwest of Rockhampton) and Marlborough (60 miles northwest of Rockhampton). Rockhampton is a small city of about 35,000 population in the eastern part of Queensland. The geographical position of the city is 23° 22' S. Lat.; 150° 30' E. Long.

Chrysoprase, a variety of chalcedony (quartz) is much used as a gem stone and for ornaments as it takes a beautiful polish.

FULGURITES IN MICHIGAN

By HARVEY FRANZ

1027 Ogden Ave., Benton Harbor, Mich.

I have read with much interest Mr. Jeff Hill's article on the fulgurites of Nags Head, N. C., in *Rocks and Minerals* of November, 1945. My interest was especially keen because, for a number of years, in company with Mr. Louis P. Ueck of this city, I have collected fulgurites in the sand dune country along the southeastern shore of Lake Michigan. We have found them in many places, from the Indiana line north to the region east of Ludington, but many of our specimens come from two localities. One of these areas is south of Benton Harbor, beginning near Stevensville and extending south of New Troy. The other lies to the north, reaching from Riverside nearly to South Haven. All of these localities are in southwestern Michigan. In many ways the conditions here are similar to those which he found at Nags Head. We, too, have the hundreds of acres of wind-swept sand, the marching dunes, the Indian camp-sites, and the traces of old farming activities.

Apparently we have on these sand dunes more vegetation than is found at Nags Head. These hills also were once covered with timber, and those areas which haven't "blown out" or been covered with drifting sand may still be grown over with sumac, catbriar, witch hazel, wahoo, sassafras, or great clumps of a tall grass.

Swamps and small lakes are numerous, and their shores and the banks of the creeks which drain the area were favorite camping places for the Indians who lived in this, "The Land of the Sky-Blue Waters". The blow-outs are all dotted with the flint chips produced in the manufacture of arrowheads and the fragments of stone broken by the heat of their camp-fires. We notice that the Indian camps are not to be found in the high dunes which rise directly from the beach, but are nearly always found in the low dunes and beaches which mark ancient levels of Lake Michigan, out of reach of the chilling breezes from the big Lake. It is in these low dunes, from a half mile to three or four miles inland, that we find most of the fulgurites. In fact, we rarely find one in the high dunes.

Mr. Hill mentions that many of those which he found were dug from sand which was saturated with water. We, two, have noticed that the locations which have been most productive are near the permanent water level, and that many of the tubes continue down into the water without any change. Occasionally we find a swelling on the tube at the water line, or perhaps a sharp change in size or direction. Almost all fulgurites go directly downward, but we have found them in a horizontal position. We have eleven feet of such a one.

In this region more fulgurites are destroyed by the roots of the tall grass which I have mentioned than by any other cause. These roots grow into the central opening, where they multiply and expand until the tube is split lengthwise. Here, those produced by lightning which followed tree roots are not continuous, but consist of a row of irregular pieces of fused material which formed on the bark of the root.

We find great variation in our fulgurites. Rarely we find a great tube an inch or more in diameter, reaching an undetermined distance into the ground. Then we may find one an eight of an inch in diameter and only a few inches long. We have found them with bulb-like swellings, apparently produced by steam or expanding gases. More often we find wrinkled, collapsed specimens, folded flat by the pressure of the surrounding sand while the material was still in a plastic state.

Some fulgurites are surrounded by sand which has been burned a brick

red by the intense heat, and we find many which consist only of a streak of this burnt sand, with perhaps occasional crumbs of fused material. We have also noticed that fulgurites tend to occur in groups, so, whenever we find one we carefully inspect the ground for ten or fifteen feet around. We once found five within a twelve foot circle, but only one was sufficiently continuous to be removed.

Nature guards her secrets in the Sand Dunes of Lake Michigan as well as at Nags Head. In this latitude we expect snow and frozen ground for three or four months each year, and in spring and fall the chill winds from the Lake make the warmest clothing necessary. And in the summer the sun shines on the bare sand with a glare that turns glass a lavender color. But there is always a breeze on top of the sand hills, and when the search for fulgurites is unsucessful, as it often is, we can always look for Indian relics on the old camp-sites. Or we can stop at the great sand dune known as Thunder Mountain, and listen for the subterranean rumble that gives it its name. And just over that range of high dunes are the beaches of Lake Michigan, covered with pebbles which the glacier brought from the far North, where we can hunt Chain Coral or Petoskey Agates.

Mr. and Mrs. Ueck, Mrs. Franz, and myself have made many trips into the dune country, and hope to make many more.

Agate in Queensland

The chief localities for agate in Queensland, Australia, are around the mining center of Percyville (50 miles to the south of Georgetown) on the Percy River; Agate Creek; and at Little Creek near Croydon. The agate occurs here in large numbers and in a great variety of color and banding. It is found as boulders and pebbles, especially plentiful in the gravels of the rivers and creek, but is also common in the soil of the surrounding terrain. The source of the agate are the nearby basalt hills.

Agate Creek is a branch of the Robertson River and in the gravels of the creek bed are found agates, bismutite, garnet, gold, limonite, magnetite, rock crystal, and ruby.

Little River is a branch of the Gilbert River (30 miles east of Croydon). Agates are found in great abundance and beauty in the gravels of this river.

Georgetown is a little village in the northern part of Queensland. Its geographic location is about 18° 19' S. Lat. and 143° 32' E. Long.

Croydon is also a small village in the northern part of Queensland whose geographic location is 18° 12' S. Lat. and 142° 16' E. Long.

Robertson River (between Georgetown and Percyville) is a branch of the Gilbert River which flows northwest to the gulf of Carpentaria.

Pascoite Crystals at 15,400 Ft. Above Sea Level

Should you be going to Peru and don't mind climbing to a wind-swept plateau in the Andes 15,400 feet above sea level, you can find pure crystals of a yellow oxide known as Pascoite at the Ragra mine operated by the Vanadium Company of America. The location is in a remote area 250 miles from Lima. At this mine vanadium is found in about 10 different ores, and 12 percent of the total supply is contained in the Pascoite crystals. Dana makes no mention of Pascoite in his book, but some other works on minerals record it. Vanadium itself was named after the Scandanavian goddess of love and beauty, Vanadis.

Because of the rarefied air at the mine, and for other reasons, the operating headquarters and concentration plant are located on the shores of a lake below the mine and at 14,200 feet, or only about 250 ft less than the height of the topmost peak of Mt. Whitney in California. Thus, it will be realized that the mine is nearly three miles in the air. Only men accustomed to living at high altitudes can work at the mine, so most of the employees are native Indians.

The mine is an open pit, and the ore body is cut in two by a large white porphyry dike. A small percentage of the ore is found in red shale.

The Amateur Lapidary

BRACELETS WITHOUT BEZELS

(PART 4)

By LUCILLE SANGER

One For The Spherecutters:

For those who cut spheres here is a chance to use some of them as an ornament in jewelry. Three will be needed and, although they may be cut from any sound flawless material taking a good polish, they should really be cut from opaque stone so the pegs will not show through.

The model was cut from pale green onyx which takes a nice polish, works easily and drills with a steel woodworking drill. For those who do not cut spheres it is a good material since it cuts easily and quickly and is therefore easier to shape than many harder stones. However, if they are to be cut freehand, they should be cut just slightly elongated as it is easier to get a good shape than where the cutter aims at getting a true sphere. Make one stone a little smaller than the others.

The spheres should be cut from three-fourths or one-inch cubes. Leave a small flat place on one side for drilling and work from that point. Begin by grinding off the corners and gradually shaping round.

Use ten or eleven gauge sterling wire for the bracelet. The wire should be two inches longer than the needed length. That is, if the bracelet should be seven inches long, than make the total length nine inches. One-fourth inch at each end will form the pegs and the remainder will be taken up by the balls as fasteners.

Cut one piece of wire three inches long. Bend exactly in the middle so that a V is formed. This adds one and one-half inches to the length. Cut another piece seven and one-half inches long. File one end and fit the V into it and solder. A Y with a very long stem has now been formed.

File the ends pointed so that they will fit into the drillings. Fasten a mandrel into a vise and, using a rubber or hide hammer, bend the bracelet into shape. Pickle.

Smooth the soldered joint with emery paper. Do not use a file unless the joint is entirely too rough to do the whole thing with emery paper. If a file must be used, be sure to take out the marks with the emery, as they will not come off with polishing. Polish in the usual manner and wash in warm suds. Rinse and dry. Clean the pointed ends with alchohol. Now cement the ends into the balls. Put the two larger spheres on the prongs of the V and the small one on the single end.

Close to the joint of the V, use a pair of pliers to bend each wire so that the two spheres touch each other and stay that way. Now place the pliers close to the ball on the single end and bend this wire up and at right angles to the bracelet curve. This will hold it in place as a fastener. Fasten the bracelet by slipping the single wire between the prongs at the other end.

The bracelet should be worn so that when the arm is at right angles to the body the single sphere is the lowest one. Because the small ball has been bent UP it will look just about as large as the other two. The weight of the stones will hold the bracelet in place.

New Occurrence of Vivianite

A new occurrence within the D. C. area of Vivianite, as a bright-blue mass in a ferruginous and argillaceous gangue in Cretaceous clay, at Terra Cotta, Md., was discovered by Dr. Titus Ulke, of Washington, D. C., on Feb. 3, 1946. The chemical formula for this mineral is $Fe_3(PO_4)_2+H_2O$.

A VISIT TO THE CROUSE MANGANESE MINE

By C. W. ERVIN Glade Valley, N. C.

This mine is located in Alleghany County, on Route 18, 2½ miles east of the court house at Sparta, N. C., near a county road surfaced with crushed stone but badly cut through as a result of December's freeze and thaws.

Most of the ore at the mine is a pink rhodonite which soon blackens on exposure to the air—the black staining is pyrolusite. Rocks large and small showed this weathering in varying degrees. Those rocks which had been exposed for several months, the pyrolusite had penetrated them almost to the center; and those which had been exposed much longer, the change from rhodonite to pyrolusite was complete. In still other piles of the ore, the pyrolusite had further disintegrated into wad and was crumbling to pieces. One of the miners told us that this blackening and crumbling took place within a few weeks, however, some of this ore had been exposed for several months and the process was still incomplete. Disintegration is more rapid when the ore is in contact with the soil.

Two new minerals, alleghanyite and galaxite, were found in the mine. Alleghanyite is a bright pink to grayish pink fluosilicate of manganese which occurs in rounded crystals and grains intergrown with calcite and very commonly with galaxite. It received its name from Alleghany County in which the mine is located. Alleghanyite is said to take a good polish.

Galaxite, a manganese-aluminate, occurs in minute black grains intergrown with calcite and alleghanyite. It received its name from Galax, the nearest railroad station which in turn received its name from the beautiful plant, galax, which grows abundantly in the region.

Prof. R. L. Jones, of our high school faculty, accompanied me on the trip and assisted in securing some specimens. Mr. Leff Crouse, who lives near the mine very kindly identified the alleghanyite which we found.

The mine is not in operation at present. Permission to visit the property may be obtained from Atty. Floyd Crouse, of Sparta, N. C.

Sanding Disks

William T. Baxter, author of *Jewelry, Gem Cutting and Metalcraft,* who resides in Bethesda, Maryland, reports the results of some recent experimentation with sanding disks.

Mr. Baxter states that one can make his own sanding disks very economically by taking a wood disk and mounting same to faceplate that fits sanding arbor, truing disk and covering same with sponge rubber and then canvas. Hot cabinet maker's glue can be applied to the cloth and silicon carbide of the desired grit dusted on, or water glass may be used Both of these, however, have their disadvantages. Hot glue dries too quickly, and water glass does not have the holding power.

"Gripmaster", a polishing wheel cement, made by the Michigan Bleach and Chemical Company, 1944 E. Woodridge St. Detroit 7, Mich.. is an excellent adhesive for the grit, states Mr. Baxter, who recently has been experimenting with improving methods of making the sanding disks. Take an ordinary paint or varnish brush and cover the canvas with the cement and then dust on the grit from a small screw-type top jar, whose lid has been punched full of small holes.

The disk can be recharged by simply washing off old cement and grit, allowing canvas to dry, and recharging.

Giant's Causeway of America

Pachuca, a city of about 50,000 population and capital of the State of Hidalgo, in eastern Mexico, is a great silver mining center of the country. Near the city are immense basaltic formations which are called the "Giant's Causeway of America". These huge basaltic columns form cliffs over 150 feet high which enclose a wide and deep basin or hollow which is known as Metlapiles into which tumbles, through a deep gorge, a wild mountain stream.

"ME & PA"—Just Two Old Rockhounds.

Dear Editor;

As I heard the story from Pa, I will pass it on to you without any frills because I do not think it needs any touching up to make it worth repeating.

On their way back from Mule Springs, Calif., being rock hounds (Harry and Pa), they stopped when they saw rocks piled up in front of a wayside place and it turned out to be that of E. W. Shaw, about a mile west of Yermo, south side of Hiway 91. They both liked the treatement they received there. All sorts of cutting materials and minerals plainly marked which is worth considering as it means one price to all. Mrs. Shaw served a light lunch with delicious coffee and that, of course, made a hit with the campers. But it was about the next stop that I started out to write about. Pa said,

"It is useless to try to describe the wonderful display of petrified woods and crystallized minerals in the display room of the "Ken Dor Rock Roost" at 419 S. Franklin St. Modesto, Calif. It is the home of Mr. and Mrs. K. B. McClure. While visiting there and viewing a low wall set with a wonderful variety of specimens from all parts of the country a caller waddled up toward where we were visiting and waved a beautiful Silver Fox Fur and chortled words of endearment directed toward Mrs. McClure. Pa said the first words that he made out were, "My dear lady you have no idea how happy I am that I noticed your sign!" Then Pa added, "I thought she would embrace our hostess." But he went on with the flow of words from the gushing caller, "As you see I am the purchasing head of the Women's ---- ---- ---- Club and we are having a convention in the city and as I am also the *president* you may well realize how delighted I was. So my dear if you will wrap up about ten or twelve of your nicest 'Rocks' and place them in the car I will be so happy."

Mrs. McClure explained to the lady that the kind of rocks they had for sale would not suit her. But the lady came back with, "But my dear woman that will not matter because ten of your Minorcas will do just as well!"

On being told that they had no chickens of any kind the lady became a trifle upset and sputtered about "the Sign!" "Rocks and Minorcas for sale?"

Pa said that you could have hung a dishpan on her nose as she swept out of our sight.

Pa has raved so much about the specimens he saw at the McClures I have decided to make a trip there myself and while on the trip I will stop at Tracy and view that wonderful collection of W. P. Weston. It is noted as one of the largest private collections in the country. Mr. Weston is a retired railroad man and delights in showing his hobby to all comers.

Pa has his head buried in "The Story of Gems" by Whitlock so I expect that is all for this time from,

Sincerely yours,
ME, of the Two Old Rockhounds.

Friedensville Zinc Mines

(*Continued from page 348*)

usually very brilliant under both long and short u. v. lamps.

And last but not least, the cold-quartz lamp revealed a wonderful display of fluorescence in the ore samples Yellowish-white, blue-white, and white light emanated from this ore and from almost every part of it. The freshly fractured areas of course showed the best luminosity. A phosphorescence test was made on the whole collection and the ore glowed in the dark and continued to glow a good blue color for one hour then decayed to a very soft gray glow for quite some time, possibly two more hours. This fluorescent material is tentatively identified as zinciferous-aragonite intimately disseminated in calamine-bearing rock.

The writer invites correspondence concerning the luminous specimens, micro-material and cabinet specimens mentioned in his current articles.

Club and Society Notes

New York Mineralogical Club

American Museum of Natural History. New York, N. Y., Wednesday, April 17, 1946.

The meeting was called to order at 8 PM. Mr. Waller V. Morgan and Dr. Frederick A. Stenbuck were elected to membership. The membership committee had no other report.

There was no report of the excursion committee.

Dr. Pough reported a new book "Volcanoes, New and Old", by Coleman, which is notable for its pictures. Dr. Holmes reported a new publication by Prof. Paul F. Kerr "Tungsten Mineralization in the United States" G. S. A. Memoir #15, March, 1946. Mr. O. I. Lee reported on a booklet by Canfield "Final Disposition of Some American Collections of Minerals" of which he had a photostatic copy. Interest was displayed by many members in obtaining copies.

The nominating committee proposed the following candidates, who were elected for the coming year,

President .....O. Ivan Lee
1 Vice-President .....F. H. Pough
2 Vice-President .....R. Holmes
Secretary .....P. J. Kent
Treasurer .....Cecil Kindle
Directors .....G. S. Stanton
J. A. Taylor

The speaker of the evening was Dr. Herman Yagoda who spoke on "Analytical Pattern Techniques of Radio-active and Luminescent Minerals". The method consists in placing a polished surface in contact with a sensitivised emulsion. Either a physical or a chemical pattern may be obtained for study. The talk was well illustrated with colored lantern slides.

Purfield J. Kent
Secretary

Central Iowa Mineral Society

A regular meeting of the Club was held on May 3, 1946, at the Y. M. C. A. in Des Moines, Iowa. Prof. Lee O Yoder, of Drake University, was the speaker whose subject was "Eras and periods of the earth's formation"

Northern California Mineral Society

Three meetings and a field trip were held by the Society during May, 1946. On May 3rd, a business meeting was held. On May 15th, a general meeting at the Public Library, San Francisco, Calif. On May 19th, a field trip was held to Lake County. On May 31st, a lapidary night.

Connecticut Valley Mineral Club

The Connecticut Valley Mineral Club has held regular monthly meetings since January of this year at the Museum of Natural History in Springfield, Mass. Officers for 1946 are: President, John E. Kitson of Easthampton, Mass.; Vice-President, Leo D. Otis of Westfield, Mass.; Secretary, Miss Mary E. Flahive of Florence, Mass.; and Mrs. Dona E. Peet of Hazardville, Conn.

Three especially interesting speakers have been heard so far this year. Raymond Schortmann of Schortmann's Minerals gave an illustrated lecture on "Mining in New Mexico" at the first meeting. At the February meeting Benjamin M. Shaub of the Smith College Department of Geology spoke on "Crystallography of Minerals". Mr. Schortmann and Dr. Shaub are members of the club. On April 1, S. J. Donnelly of the Hamilton Emery Company of Chester, Mass., was the speaker. Mr. Donnelly discussed composition and sources of emery and corundum.

The Field Trip Program Committee is now working on plans for summer collecting trips.

Miss Mary E. Flahive, Secretary

Georgia Mineral Society

Dr. Lane Mitchell, Head of the Department of Ceramic Engineering and Geology at Georgia Tech., was on Monday night May 6th, 1946, elected President of the Georgia Mineral Society for the coming year. Dr. Mitchell succeeds S. P. Cronheim who has served as President for the war period, since 1942. Other officers elected were Dr. Arthur Munyan, Professor of Geology at Emory University, as Vice President; Charles A. Wilkins, Jr. Secretary; S. P. Cronheim, Treasurer; and J. Roy Chapman, Corresponding Secretary. The new slate of officers will take office at a dinner meeting held the first Monday of July. Retiring officers, besides Mr. Cronheim, were J. Roy Chapman, Secretary, and Harry Uhl, Treasurer.

A beautiful collection of precious and semi-precious stones was exhibited at the meeting and explained by its owner, Mr. Frank Ingram. Among the gems displayed were specimens of andalusite, topaz, beryl and tourmaline in rare colors. A particularly beautiful speciman of opalized bone was shown to the group. Mr. Ingram's collection is said to be one of the finest in the South.

Dr. Lane Mitchell was announced as the next speaker for the June 4th meeting. He will speak on the subject "Atomic structure of minerals."

Columbian Geological Society

A display of lapidary work and mineral specimens was presented to the public on April 4, 1946, by the Columbian Geological Society at its regular meeting at the Eastern Washington Historical Society Museum, Spokane, Washington.

Notable specimens shown were—petrified (polished) limb sections owned by C. E. Kline; facet cut material, including quartz from Wld Rose Prairie, near Spokane, desert glass and both natural and synthetic crystals, P. M. Blake; polished beach agates, P. N. Brannan; cabochon cut minerals from most of the forty-eight states, Dale Lambert; plume agates and Arizona petrified wood, George Howard; copper minerals, intrusive and extrusive rocks, A. C. Walker; collection of beautiful crystals, Chas Magee; cabochons and polished cubes, C. B. Neal; fluorescent minerals, C. O. Fernquist; cabinet of various specimens, C. E. Harris; cabochons, Jos. Seubert. This "open house" attracted many visitors.

Educational Project

This last fall and winter much time was spent on the collection and arrangement of local rocks and minerals, together with duplicate material of the Eastern Washington Historical Society, for loan collectons from the Historical Society to each of the thirty-seven grade schools and the Shriners Hospital for Crippled Children in Spokane. There are forty named specimens in each collection, the boxes for which were made by the pupils of the Havermale Junior High School. We heartily recommend this type of project for any mineral society.

So much interest was shown by some of the teachers that a study group for the identification of rocks and minerals was organized by the Columbian Geological Society. We meet once a month and fifteen schools are represented in this group, which is under the direction of Mr. Hugh Henry.

Alma C. Walker Pres.
770 Paulsen Bldg.,
Spokane 8, Washington

Rochester Academy of Science
(Mineralogical Section)

A regular meeting of the Section was held on May 8, 1946, at the Rochester Museum of Arts and Sciences, Rochester, N. Y. The speakers were John M. Dowe, Jr., who related some of his experiences in collecting minerals, and David E. Jensen who discussed the geology of some mineral localities in St. Lawrence Co., N. Y.

On May 18th, the Section held a field trip (the first since 1941) to some fossil localities in Livingston Co., N. Y.

On June 15-16, a field trip is planned to St. Lawrence Co., N. Y. (in the vicinity of Gouverneur) where talc and lead-zinc mines and other localities will be visited.

The Fifth L. A. Lapidary Society Gem Show

More than 8,000 persons saw the fifth annual show put on by the Los Angeles Lapidary Society on May 4th and 5th, 1946, at the L. A. County Museum at Exposition Park. The exhibit consists of 58 cases of the general display and 16 cases in the competitive group. In addition to this, there is a splendid education set-up consisting of books on gem lore, maps showing the location of gem areas in California, stones in different stages of process, mineral magazines, and our society bulletin. The display will be shown until June 28th, thus allowing many visitors to the museum to see it. There was much interest shown in the workings of the lapidary machinery which was in continous operation the two opening days. The latest improved saws, drills, faceting devices were shown and when in operation there was a crowd of interested spectators watching. In fact, this exhibit was an outstanding feature in the show.

One thing that visitors spoke about was the improved workmanship in the stones and the artistic arrangement of fewer stones in the cases. The best general display was the A case by Leo Berner; this case received the largest number of votes by the active members. The best stone in the competitive group was a beautifully faceted stone of smoky quartz fashioned by Ray Orcutt. Three very prominent professional lapidaries were the judges.

An additional feature was the instructive and interesting talk on gems by Mr. Leland Quick given in the afternoons of both days. At the close of the talk, Mr. Quick answered questions and gave much information to persons who wished to become lapidaries.

American Gem Society
(Northern Ohio Guild)

A regular meeting of the Guild was held on May 14, 1946, at Western Reserve University, Cleveland, Ohio. Dr. Henry F. Donner, of the University, was the speaker whose subject was "Pearls".

Mineralogical Society of Arizona

Two meetings and a field trip were held by the Society during May, 1946. On May 2nd, Ruth Simpson, Curator of the Heard Museum, gave an illustrated talk on "Hohokam Industries". On May 16th was held the top event of the season—The Jamboree—with a competent Master of Ceremonies.

The field trip was held on May 12th to Date Creek where nice quartz crystals and small limonite pseudo after pyrite crystals occur.

The Society meets at the Arizona Museum, Phoenix, Ariz.

Los Angeles Mineralogical Society

Mr. Alden De Vore addressed the April meeting of the Society on Smelter Practice, Mr. De Vore spent many years in the Philippine Islands and was unfortunate enough to be a prisoner of war during the recent World War. He gave the Society a brief description of the various types of furnaces used in smelting ores and stated that they had a daily capacity of from 75 to 500 tons of ore. Iron pyrites are usually roasted if high in sulphur content and the sulphur dioxide recovered used in the production of sulphuric acid. Low grade ores are put through crushers and the heavy metallic compounds are separated by gravity. When the concentrates are of a fine powdery nature some silica is mixed with them so that they are not lost in the blast furnaces. The ground or powdered ore is placed in the blast furnace, lime, coke and other ingredients added and the whole mass heated to sintering temperatures. In the case of copper ore the furnace reaches a temperature of 1900°F. The heavy metals are separated by the cyanide process before smelting or cupellation takes place. The reduced metals flow into cups and the impurities form a slag on the top of the metal. Mr. De Vore said the basic wage of a Philippine laborer was one peso a day but it took 20 men to perform the work of one American laborer.

Arthur G. Weigel
Pub. Chairman.

Wisconsin Geological Society

A regular meeting of the Society was held on May 6, 1946, at the Milwaukee Public Library, Milwaukee, Wisc. The speaker was Henry Bloedel, of the Bloedel Jewelry Co., whose subject was "Semi-precious Gems".

East Bay Mineral Society

Two meetings of the Society were held during May, 1946. On May 2nd, R. M. Addison, of the San Jose Lapidary Society, gave a talk on "The history and art of the cameo." On May 16th, George H. Needham, a microscopist by profession, showed kodachrome slides of some of his work and displayed many micro-mounts. On May 11th and 12th, an overnight field trip was held to the mercury mines at Knoxville, Calif.

The Society meets at the Auditorium, Lincoln School, Oakland, Calif.

Mineralogical Society of So. California

A regular meeting was held by the Society on May 13, 1946, at the Public Library, Pasadena, Calif. Dr. Robert Webb, Associate Professor of Geology at U. C. L. A., was the speaker whose subject was "Pictorial history of the geology of the Southern Sierra Nevada of California."

Boston Mineral Club

A regular meeting of the Club was held on May 7, 1946, at the American Academy of Arts and Sciences, Boston, Mass. The program consisted of a symposium, by members with Dr. Wolfe in charge, on fluorescence, with particular emphasis on the behavior of New England minerals.

On May 12th a field trip was held to the famous talc quarry at Chester, Vt., where pyrite, actinolite, magnetite and other crystals and minerals occur.

Marquette Geologists Association

A regular meeting was held by the Association on May 4, 1946, at the Academy of Sciences, Chicago, Ill. The program was devoted to an auction of minerals. Dr. John Ball again gave his interesting and instructive "Short lessons in geology".

Maine Mineralogical and Geological Society

The Annual Dinner of the Society was held on April 26, 1946, at the Legion Hall, Portland, Me. The speaker was Dr. Clifford Frondel, of Harvard University, who spoke on pseudomorphs.

Colorado Mineral Society

A regular meeting of the Society was held on May 3, 1946, at the Museum of Natural History, Denver, Colo. The speaker was Dr. Alfred M. Bailey, Director of the Museum whose subject was "Mormon Land".

Chicago Rocks and Minerals Society

A regular meeting of the Society was held on April 20, 1946, at the beautiful home of Mr. and Mrs. J. L. Kraft in Chicago, Ill. Eighteen members were present. Mr. Kraft gave a very interesting talk on jade, after which the members had the opportunity to see his wonderful collection of jade, and to inspect his fully equipped lapidary shop. It was a very interesting and profitable evening for every member present.

Geo. C. Anderson, President

Newark Mineralogical Society

The 241st meeting of the Society was held on May 5th, 1946, in the Newark Museum, Newark, N. J. The meeting was devoted to an exhibit and short talks by members on foreign and domestic agate and quartz crystals.

On April 28th, the Society held a field trip to the Bridgewater copper mine, Pluckamin, N. J. On May 19th, a field trip was made to the carnelian and jasper locality in branch of Stony Brook near South Stirling, N. J.

New Jersey Mineralogical Society

A surprise-night was planned by the Society for its meeting on May 7, 1946, at the Public Library, Plainfield, N. J.

Pacific Mineral Society

A dinner meeting was held by the Society on May 10, 1946, at the Eleda Restaurant in Los Angeles, Calif. The speakers were E. Burris Bingham whose subject was "Determination of minerals by semi-microscopic methods"; William C. Oke whose subject was "Microscopic determination of minerals"; and O. C. Smith whose subject was "Mineral determination by specific gravity, color, and crystallization."

Queens Mineral Society

A regular meeting of the Society was held on May 2, 1946, at the Church of the Resurrection, 8501--118th St., Richmond Hill, N. Y., Mr. Frank Lewis completed his series of four lectures on atomic power. He discussed radioactivity and its applications.

Ruth Grotheer, Secretary

. . . With Our Dealers . . .

Chas. E.Hill, of Phoenix, Ariz., has in stock a large amount of beautiful gem-quality Arizona agates, jaspers, and petrified wood.

Three of the finest Texas fluorescents may be obtained from Frank Duncan and Daughter, of Terlingua, Texas.

Ozark Biological Laboratories, of Hot Springs National Park, Ark., are with us again. See their interesting ad and note their new address.

Good quality cutting material of sapphire, and black tourmaline may be obtained from Lionel Day, of New York City.

Graffham's Commercial Museum, of Ottawa, Kans., has in stock some spectacular selenite and other attractive crystals.

V. D .Hill, of Salem, Ore., has acquired some superb fluorescent agate and chalcedony carrying some unidentified uranium mineral—from a recent discovery in Oregon.

Some more choice crystallized mineral specimens are advertised this month by E. Mitchell Gunnell, of Denver, Colo.

The Long Beach Mineral & Supply Co., of Long Beach, Calif., suggests building your own diamond saw with their G & W Supreme saw arbor.

Thompson's Studio, of Pomona, Calif., has a nice bargain for you.

The Hermosa Gem & Mineral Shop, of Durango, Colo., suggest some interesting localities to visit when on your trip to southwestern Colorado.

Rare pastel jaspers are advertised by the Erskine Collection, of La Jolla, Calif.

An ideal mineral study collection can be obtained from Hatfield Goudey, of Yerington, Nev.

It's here!—the Cone Lap!—announces the Mountain Gem & Supply Co., of Durango, Colo.

The source of particianite, the popular new gem stone, has been located, announces Keweenaw Agate Shop, of Ahmeek, Mich., who have a nice stock of it.

Vincent Trescartes, of Elko, Nev., a new advertiser, speciallizes in opalite.

Hugh A. Ford, of New York City, will surely intrigued collectors with his new list of fine minerals.

Some choice Franklin, N. J., minerals are offered this month by Ward's Natural Science Est., of Rochester, N. Y.

Another list of choice Canadian minerals is featured by Schortmann's Minerals, of Easthampton, Mass.

Need any ear wires for your jewelry work? Neuwerk Lapidary Shop, of Moline, Ill., another new advertiser, can supply them.

John S. Albanese, of Newark,N. J., has some fine brownish stilbites collected over 50 years ago from a now exhausted New Jersey locality.

Bargains for the lapidary hobbyist may be obtained from Arthur and Lucille Sanger, of Chicago, Ill.

Nice rough gem minerals of many varieties may be obtained from A. G. Parser, Inc., of New York City, a new advertiser.

The Wiener Mineral Co., of Tucson, Ariz., has another list of fine specimens and also one featuring excellent specimens from Los Lamentos, Mexico.

The Pan-America Mining Co., of Bayfield, Colo., has some choice Western agate in stock. It is of high quality.

The famous "Streamliner" diamond saws, manufactured by Wilfred C. Eyles, of Bayfield, Colo., may be had in sizes from 6" up to 20" in diameter. What size do you need?

Another new advertiser is Wm. E. Luoma, of Calumet, Mich., (brother of Henry L. Luoma of the Keweenaw Agate Shop), who offers a number of interesting coppers and some fluorescents.

A transparent mineral slide—you should have several—may be obtained from Gilbert W. Withers, of Atlanta, Ga.

Mrs. A. O Phipps, of Dallas, Texas, announces a new discovery of the handsome gypsum rosettes advertised previously.

John L. James, of Tonopah, Nev., has just received some beautiful rose quartz direct from Brazil.

Something new!—synthetic gem material!—announces Mrs. MaryAnn Kasey, of Prescott, Ariz.

Garden State Minerals, of Hoboken, N. J., have some beautiful coral geodes from Florida.

E. W. Martin, of Ann Arbor, Mich., has a wide selection of cutting material as well as crystallized minerals in general.

Brown's Atelier, of Las Vegas, Nev., will close his mail order business for 3 months in order to work a new deposit of nice moss agate.

J. J. Jewelcraft, of Montrose, Calif., have some nice lapidary equipment in stock.

Mineral collections for geological study may be obtained from Brown Mineral Research, of Florence, Colo., a new advertiser.

Omaha Scientific Supply Co., of Omaha, Nebr., another new advertiser, has just issued a new price list of fossils.

Some attractive cabinet specimens may be obtained from Roberts & Stevens, of Monterey Park, Calif.

Bibliographical Notes

Hill's New Catalog:V. D. Hill, Rt. 7-C, Box 188, Salem, Oregon, has just released Catalog No. 19.

This is an attractive publication of 32 pages with a number of fine illustrations. It is divided as follows:-Cut Stones, pp.3-9; Crystallized Minerals, pp. 10-19; Loose Crystals, pp. 20-25; Synthetic Rubies and Sapphires, p.26; Meteorites, p. 27; Gold and Silver Specimens, p. 28; Polished Agate Specimens, p. 29; Fluorescent Minerals and Lamps, pp. 30-31; Uranium Minerals, p. 31; Books, p. 32.

Send for your copy today.

Keweenaw Agate Shop's New Catalog:The Keweenaw Agate Shop, 28 Vivian St., Ahmeek, Mich., have just released their new catalog. It consists of 28 pages and cover and has 3 illustrations of which one is a corner of their lapidary shop, and another of Patricia Ann Luoma, the sweet little girl for whom Patricianite, a new gem mineral, was named.

The catalog embraces lapidary supplies and cutting material, minerals, fossils, fluorescent lamps, etc. Send for your copy of this interesting catalog—price 15c or free with order.

Fine Mineral Specimens: Ward's Natural Science Est., Inc., Box 24, Beechwood Sta., Rochester 9, N. Y., have also released a new catalog whose title is "Fine Mineral Specimens, Catalog No 466". It consists of 20 pages of which pp. 3-19 are devoted to fine mineral specimens, arranged alphabetically, and pp. 19-20 to meteorites.

The catalog is free—send for your copy today.

Fergusonite First Found in Green'and

Fergusonite is an oxide or (columbate-tantalate) of yttrium, erbium, columbium, and tantalum. It is commonly brownish black in color and though a rare mineral it is found in many parts of the world.

The mineral was first found by the English mineralogist, Sir Charles Gisecke, in 1806, in small brownish-black crystals disseminated in quartz, at Kikertaursak, near Cape Farewell, in Southern Greenland.

The mineral was named after Robert Ferguson, a Scotch physician.

Notes Wanted on Arizona Locality

Rocks and Minerals would appreciate a few notes on the amethyst occurrence near Roosevelt Dam in Arizona. Who can oblige?

COLLECTORS' ITEMS

In my excavations in prehistoric MOUNDS, at Wickliffe, Ky., and other DIGS, I have accumulated thousands of duplicates which I have decided to dispose of to other collectors at very reasonable prices. Since this is not a business with me, I cannot bother with anything less than a $5 order. Remit with order, and if goods are not satisfactory, money will be refunded.

ARCHAEOLOGICAL

Prehistoric Flint Arrowheads ..... 10c, 25c & $1.00
Fine Bird Points & War points ..... $1.00 to $5.00
Prehistoric Spear Points ..... 75c to $2.00
Prehistoric Stone or Flint Celts ..... $1.00 to $2.00
Prehistoric Mound Beads, two types, flat & barrel, 2 ft. string $2.50
Prehistoric Mound Pottery ..... $4.00 to $10.00
Fine Flint Spade, agricultural implement ..... 6" to 8", $5.00 fine, $10.00
Mussel Shell Spoons, from our Mounds, worn on edge ..... $1.00 to $3.00
Panama Pottery, Red or Two Colors ..... $10.00 to $20.00 Effigies, $35.00
Whet Stones or Tool Sharpeners, from our Excavations ..... $2.00 to $3.00
Prehistoric Axe Head, Tomahawk, mounted with bark and handle $2.00
Skull with dirt in it, have the fun of cleaning $10.00
Lower Jaw, Skull, few teeth missing $3.00
Prehistoric Pearls, bored, from Mound, Good Luster ..... $1.00 to $ 3.00
Large Prehistoric Pearls, bored, good luster ..... $5.00 to $10.00
Mortar & Pestle, from our Excavations ..... $5.00 to $10.00
Pottery Trowels, two types, our excavations, used to make pottery, etc., $3 to $5

CENTRAL AMERICAN BELLS—$5.00, $10.00 and $15.00. These copper bells were made centuries ago by the "LOST WAX" method, each had to be made in individual clay molds. Average size about three inches. Workmanship and size govern price.

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"Illinois State Museum Vol. 1, 1939, states, Mazon Creek region of Illinois have furnished Science with the **Finest Plant Fossils**, found anywhere in the world."

Fern Leaf Fossils, many beautiful types ..... $1.00 to $3.00
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Fossil Seed Pods, elongated and round ..... $1.00 to $3.00
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Beautiful Kentucky Crinoid Stems & Joints 25c
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All from the famous Shale Beds of Kentucky or Illinois. Price governs size and quality, postpaid. We have thirty thousand Fossils.

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One limited Area in the Kentucky-Illinois Fluorspar District yields in sparse quantities the rare and unusual Multi-Colored Fluorspar, colors Yellow to Purple and Amber, blended tints. We have Crystals and Octahedrons. Pure clear Optical Fluorspar used in War instruments and industry is limited, we can furnish at reasonable prices. We have a few Feathered specimens, so eagerly sought by collectors

Multi-Colored Fluorspar Xls, $1.00 to $2.00 small, $3.00 to $5.00 medium (4") $10.00 to $25.00 large.
Multi-Colored Octahedrons, (Double Pyramids) ½" to 1" $1.00 to $2.00, 1½" $4.00, 2" $6.00
Scarce Yellow & Amber Octahedrons ½" to 1" 75c to $1.50, 1½" $3.00, 2" $5
Dark Purple to Light Lavender Octahedrons ½" to 1" 50c to $1.00, 1½" $2.00, 2" $4.00
Dark Purple to Light Lavender Xls, 50c to $1.00 small, $2.00 to $4.00 medium, (4") $5.00 to $20.00, large.

Banded Fluorspar Xls, "Coon Tail," alternate layers Fluorspar & Calcite, 50c to $1.00, small (varied colored) $2.00 to $4.00 medium (4"), $5 to $20 large
Galena and Fluorspar Xls, mixed, 50c to $1.00 small, $2.00 to $4.00 medium, $5.00 to $20.00 large.
Sphalerite and Fluorspar Xls, mixed, 50c to $1.00 small, $2.00 to $4.00 medium $5.00 to $20.00 large.

Transportation Paid Minimum Order $5.00

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